

What is claimed is:

1. A disk cartridge ejection mechanism for moving a disk cartridge from a loaded position thereof in which information is recorded in and reproduced from a recording medium inside the disk cartridge, to a removal position in which the disk cartridge can be taken out from an image recording and reproducing apparatus, the disk cartridge ejection mechanism comprising:

(a) a cartridge engagement device for engaging with the disk cartridge to inhibiting the disk cartridge from moving beyond the removal position, when the disk cartridge is moved from the loaded position to the removal position;

(b) a cartridge engagement auxiliary device for preventing a release of engagement of the cartridge engagement device with the disk cartridge, when the disk cartridge is moved from the loaded position to the removal position; and

(c) an auxiliary releasing member for releasing a state in which the cartridge engagement auxiliary device prevents the release of the engagement of the cartridge engagement device with the disk cartridge, after the disk cartridge is moved from the loaded position to the removal position.

2. The disk cartridge ejection mechanism of claim 1, further comprising:

an urging member for urging the disk cartridge toward an ejection direction; and

a locking member for inhibiting the disk cartridge from moving at the loaded position thereof; and

a lock releasing device for releasing the locking member.

3. The disk cartridge ejection mechanism of claim 1, wherein the cartridge engagement device comprises an elastic arm having a protrusion to engage with a concave portion of the disk cartridge, and the cartridge engagement auxiliary device comprises a lock arm for coming in contact with a surface on an opposite side of a surface where the protrusion of the elastic arm is provided.

4. The disk cartridge ejection mechanism of claim 3, wherein the cartridge engagement auxiliary device comprises:

a plate on which the lock arm is rotatably provided;
and

a lock arm urging member for urging the lock arm toward the elastic arm.

5. The disk cartridge ejection mechanism of claim 4, wherein the plate of the cartridge engagement auxiliary device is provided movably in the ejection direction of the disk cartridge, and comprises a plate guide for guiding the plate between a position in which the elastic arm is in contact with the lock arm and a position in which the elastic arm is not in contact with the lock arm,

wherein the lock releasing device comprises an ejection motor, and an eccentric pin driven and rotated by the ejection motor for releasing the locking member and the cartridge engagement auxiliary device, and

wherein when the ejection motor is driven, the eccentric pin releases the locking member, the urging member moves the disk cartridge from the loaded position toward the removal position by urging force, and moves the plate of the cartridge engagement auxiliary device to the position in which the elastic arm is not in contact with the lock arm, after the disk cartridge reaches the removal position.

6. A disk cartridge ejection method for moving a disk cartridge from a loaded position thereof in which information is recorded in and reproduced from a recording medium inside the disk cartridge, to a removal position thereof in which the disk cartridge can be taken out from an image recording and reproducing apparatus, the disk cartridge ejection method comprising:

(a) holding the disk cartridge with a first holding force by which the disk cartridge is not moved further than the removal position at least when the disk cartridge is moved from the loaded position to the removal position; and

(b) thereafter holding the disk cartridge with a second holding force that is smaller than the first holding force.